

~~Fig. 72~~
~~Fig. 75~~

Application No. 09/997,205
Amendment dated December 14, 2004
Reply to Office Action dated September 22, 2004

PATENT

REMARKS

1. Claims

Applicants note the withdrawal of the prior-art rejections over U.S. Pat. No. 5,932,799. Claims 1 – 11 and 16 stand rejected under 35 U.S.C. §112, ¶1 as failing to comply with the enablement requirement. The rejections are respectfully traversed. Claim 5 has been amended to correct a typographical error to refer to a “bottom surface” rather than to a “bottom recess”; it is believed that this error, and the correct interpretation, would have been apparent to one of ordinary skill in the art. Claim 8 has been amended to correct an informality; this amendment does not change the scope of the claim.

The Office Action states that “[f]urther review of the specification, particularly Figures 72 and 75 of the drawings, is not considered to disclose the invention as recited in claims 1, 11 and 16, particularly a first and second elastomer layer bearing in a first and second recess, respectively, the second recess having an arched ceiling.” Applicants note that independent Claim 1 recites “the first elastomer layer bearing in a bottom surface a first recess” and “the second elastomer layer bearing in a bottom surface a second recess having an arched ceiling.” For each elastomer layer the respective recess is required to be borne in a bottom surface of the respective elastomer layer. This is also true for independent Claims 5 and 16, with Claim 16 reciting similar language and Claim 5 reciting “a bottom surface of the first elastomer layer bearing a first recess” and “a bottom surface of the second elastomer bearing a second recess.”

The Examiner’s attention is drawn to the description of Fig. 72 in the specification:

In a further alternative aspect, the control channel may be positioned underneath a flow channel having an arched ceiling, such that deflection of the membrane causes the membrane to bow upwards and conform to the arched ceiling of the flow channel, thereby ensuring a good seal. Fig. 72 shows a cross-sectional view of such an alternative valve structure 7700, wherein control channel 7702 is formed in first elastomer layer 7704 in contact with underlying substrate 7706. Second elastomer layer 7708 containing flow channel 7710 is positioned over first elastomer layer 7704, such that flow channel 7710 is orthogonal to underlying control channel.

Fig. 72 shows that membrane portion 7712 defined between control channel 7702 and flow channel 7710 can be deflected into flow channel 7710 to conform to the arched shape of

ceiling 7710a of flow channel 7710. Conformity of the actuated membrane 7712 with the shape of the flow channel ceiling prevents leakage of materials through the closed valve and helps ensure linear response of the valve.
(Application, p. 36, ll. 7 – 19).

This description alone, but even more so together with Fig. 72, unequivocally provides an enabling disclosure of each element of Claim 1. In particular, the embodiment of Fig. 72 includes an “underlying substrate” 7702 over which is formed “a first elastomer layer” designated by reference number 7704. A bottom surface of this first elastomer layer bears “a first recess” 7702 that acts as a control channel and within which fluid may flow in a left/right direction in the page. Over the first elastomer layer is formed “a second elastomer layer” designated by reference number 7708. A bottom surface of this second elastomer layer bears “a second recess” 7710 that has “an arched ceiling” 7710a and that acts as a flow channel within which fluid may flow in a direction orthogonal to the page. A top portion of the first elastomer layer acts as “a membrane portion” 7712 defined between the first and second recesses and is described in the specification as deflectable upward into the second recess to conform with and seal against the arched ceiling (Application, p. 36, ll. 15 – 17).

It is thus respectfully believed that every element of Claim 1, and corresponding elements of the other independent claims, is supported by an enabling disclosure.

2. Drawings

Formalized versions of Figs. 71A – 82C are being filed concurrently herewith. It is believed that these formalized versions obviate the objections to the drawings identified in the Office Action.

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Conclusion

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 303-571-4000.

Respectfully submitted,

Date: _____

Patrick M. Boucher
Reg. No. 44,037

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 303-571-4000
Fax: 415-576-0300
PMB/jln
60370220 v1

~~9/22/04~~
~~Wherein claims 11 and 16~~
~~were rejected under 35 USC 112~~
~~first paragraph~~